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INFORMATION REPORT INFORMATION REPORT

CENTRAL INTELLIGENCE AGENCY

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SECRET
NO FOREIGN DISSEM

COUNTRY Yugoslavia

REPORT

SUBJECT Yugoslav Communications Network

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A. GENERAL

1. The radio installations can be basically divided into two groups of nets:

   a. A "stable" group made up of links H-10, H-14 and H-16 which can be considered completely fixed;

   b. A "non-stable" net (islands), subject to variations, including seasonal, established by the Postal and Telecommunications directors to meet local needs.

   The firm will supply only radio network carrying systems. The Multiplex equipment will, it appears, be furnished by the Siemens Firm. The links are originally planned for 960 channels but, since they are often higher than the standard CCIT length (56 Km), the links are guaranteed for only 300 channels. It is supposed, however, that it is intended to increase the channel load beyond that number. The main backbone is made up of the H-14 and H-10 links, the branches are made of H-10 and H-9 links, while some particular lines use H-16 material.

2. Summary data on the radio network equipment:

   H-14: Microwave carrying antenna, for telephone and television communications, with demodulation at every section. Permits 960 telephone channels or one television channel. Actually, for the reason mentioned above, the link is guaranteed for a capacity of 300

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GROUP 1
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telephone channels or one 625 line television channel, with transmission quality corresponding to CCIR recommendations;

H-10-3: Microwave carrying system, range 7125-7775 MC/S allowing transmission of two radio channels each of a capacity of 300 wide band telephone channels. It is suitable for short range communications. The maximum coverable distance is of the order of one section of the theoretical CCIR supply circuit (280 Km);

H-16/I/L: Carrying system, operating in the I and L ranges (7125-7750 MC/S) permitting transmission of one or two radio channels of the capacity of 60 wide band telephone channels;

H-9-2: Microwave carrying system, ranges 7425-7750 MC/S and 7750-8125 MC/S, capacity 12 telephone channels. Used for branches from the main network or as service link.

The basic H-14 net has been designed mainly to serve the television network. It consists of 3 or 2 radio channels. In the case of the 3 channels, the sub-division is as follows:

1 radio television channel;

1 radio telephone channel;

1 radio reserve channel.

In the case of the 2 channels there is no reserve channel and, in the case of malfunction, the TV channel acts as reserve telephone channel.

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Each main link is complete with an auxiliary radio link of H-9 type with 12 channels on the same range. These channels are used as follows:

As service channels;

For tranmission of telesignals which communicate location and type of malfunction in the H-14 link;

For transmission of signals destined for automatic exchange of service channel for that of reserve;

Possible music channel (radio) using 4 telephone channels.

The antennas used are paraboloid type and each antenna, using appropriate filters, can serve up to 4 channels. Wide use is made of passive mirror repeaters. These mirrors, of large dimensions, are visible at great distances. They generally rise in less accessible areas and are not manned. Power is supplied from the power grid or from generators. In both cases there are always two reserve generators. All the active repeaters are manned by non-technical military personnel. Telecommunications technicians are scarce, but those which are available are well prepared.

B. DESCRIPTION OF THE DEVELOPMENT OF THE RADIO NETWORK LINES

3. The radio communications in which the firm is involved in supplying material concerns four main nets:

a. NET I: Main coastal link from Zagreb to Dubrovnik.

b. NET II: Main internal link from Belgrade to Titograd and to Sarajevo.

c. NET III: Macedonia link from Nis to Pristina. From Belgrade to Nis there is a Siemens radio link capable of transformation to coaxial cable lines. From Nis there departs the link for Bulgaria. 50X1-HUM

d. NET IV: For the islands.

There is, in addition, the possibility of strengthening the line from Belgrade to Novi Sad to develop communications with Hungary.

4. Particulars of the lines making up the various nets: The types of links used are given in attachments 1 and 2.

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NET I

Line I:

Zagreb-Split (3 radio channels);

1 telephone (5 supergroups - 300 telephone channels);

1 reserve.

Branches:

Rijeka (Fiume);

Zadar (Zara).

Line 2:

Split-Dubrovnik (two radio channels which will be raised to 3);

1 telephone (300 channels);

1 TV;

At point Z it ties in with the line which connects that point with point N [redacted] 50X1-HUM

NET II

Line 3.

Belgrade-Titograd (2 radio channels which will be raised to 3);

1 telephone (300 channels);

1 TV.

Line 4:

Belgrade-Banja Luka (2 radio channels which will be raised to 3);

1 telephone (300 channels);

1 TV.

From Belgrade to Zlatibor lines 3 and 4 are together.

At point N (attachment 1) there is:

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a line which joins at point Z with line 2 and has, in addition, function as reserve to the coaxial cable which links Belgrade and Zagreb;

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From Zagreb the cable continues to Ljubljana where there are two branches

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NET III

Line 5:

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1 telephone (300 channels);

1 TV.

This net is not isolated since from Belgrade to Nis there is a Siemens radio link suitable for transformation to coaxial cable.

NET IV

As already mentioned, this is the island net made up mainly of R-9 links whose make-up will be subject to continuous changes.

C. MISCELLANEOUS INFORMATION:

5. Other planned links.

Presently planned are:

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communications from point B of line 1

Osijek-Vinkovci-Brod communications using H-10 link;

strengthening of the Belgrade/Novi Sad net for communications with Hungary.

6. Vulnerability of the nets:

The network as equipped is not very sensitive to electronic disturbances, but it can be neutralized by acting on one of the repeaters. Particularly sensitive are the passive repeaters (about 15 of them) which:

are of large dimensions and are thus well visible;

are not manned;

are in isolated spots;

need very accurate adjustment (orientation is carried out by making use of the sun);

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They are therefore particularly exposed:

to sabotage action; and

to air tactical support operations.

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7. Existence of a coaxial cable plant.

The coaxial cables, which initially were to be furnished by a firm, will be obtained from a factory being equipped near Belgrade.

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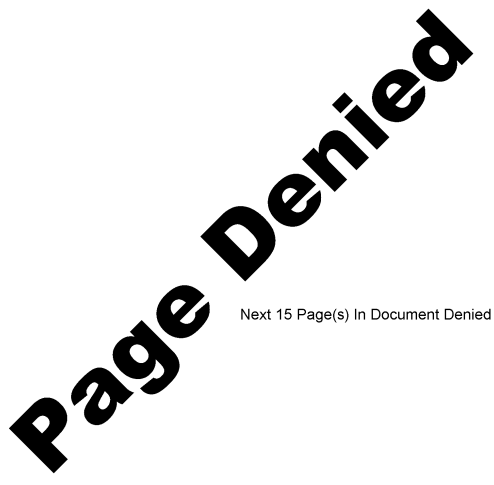

Next 15 Page(s) In Document Denied